## SEQUENCE LISTING

<110> Bandman, Olga Tang, Y. Tom Hillman, Jennifer L. Yue, Henry Guegler, Karl J. Corley, Neil C. Gorgone, Gina Azimzai, Yalda Lu, Aina

<120> Protein Kinase Homologs

<130> PF-0614 US

<140> To Be Assigned

<141> Herewith

<160> 18

<170> PERL Program

<210> 1 <211> 297

<212> PRT

<213> Homo sapiens

<220> -

<223> 119819

<400> 1 Met Arg Arg Lys Arg Lys Gln Gln Lys Arg Leu Leu Glu Glu Arg 10 Leu Arg Asp Leu Gln Arg Leu Glu Ala Met Glu Ala Ala Thr Gln 20 25 Ala Glu Asp Ser Gly Leu Arg Leu Asp Gly Gly Ser Gly Ser Thr 35 40 45 Ser Ser Ser Gly Cys His Pro Gly Gly Ala Arg Ala Gly Pro Ser 50 55 Pro Ala Ser Ser Pro Ala Pro Gly Gly Gly Arg Ser Leu Ser 70 75 Ala Gly Ser Gln Thr Ser Gly Phe Ser Gly Ser Leu Phe Ser Pro 80 Ala Ser Cys Ser Ile Leu Ser Gly Ser Ser Asn Gln Arg Glu Thr 95 100 Gly Gly Leu Leu Ser Pro Ser Thr Pro Phe Gly Ala Ser Asn Leu 110 115 Leu Val Asn Pro Leu Glu Pro Gln Asn Ala Asp Lys Ile Lys Ile 125 130 135 Lys Ile Ala Asp Leu Gly Asn Ala Cys Trp Val His Lys His Phe 140 145 Thr Glu Asp Ile Gln Thr Arg Gln Tyr Arg Ala Val Glu Val Leu 155 160 Ile Gly Ala Glu Tyr Gly Pro Pro Ala Asp Ile Trp Ser Thr Ala 170 175 Cys Met Ala Phe Glu Leu Ala Thr Gly Asp Tyr Leu Phe Glu Pro 185 190 His Ser Gly Glu Asp Tyr Ser Arg Asp Glu Asp His Ile Ala His 200 205 Ile Val Glu Leu Cly Asp Ile Pro Pro Ala Phe Ala Leu Ser 215 220 Gly Arg Tyr Ser Arg Glu Phe Phe Asn Arg Arg Gly Glu Leu Arg 230 235 240 His Ile His Asn Leu Lys His Trp Gly Leu Tyr Glu Val Leu Met

245

250

ľU

.fg

[]

1,1



Glu Lys Tyr Glu Trp Pro Leu Glu Gln Ala Thr Gln Phe Ser Ala 260 265 270 Phe Leu Leu Pro Met Asn Glu Tyr Ile Pro Glu Lys Arg Ala Ser 275 280 Ala Arg Asp Cys Leu Gln His Pro Trp Leu Gln Pro 290

<210> 2 <211> 287 <212> PRT <213> Homo sapiens <220> -<223> 132750 <400> 2 Met Gln Glu Ile Pro Gln Glu Gln Ile Lys Glu Ile Lys Lys Glu Gln Leu Ser Gly Ser Pro Trp Ile Leu Leu Arg Glu Asn Glu Val 20 25 Ser Thr Leu Tyr Lys Gly Glu Tyr His Arg Ala Pro Val Ala Ile 35 40 Lys Val Phe Lys Lys Leu Gln Ala Gly Ser Ile Ala Ile Val Arg 55 Gln Thr Phe Asn Lys Glu Ile Lys Thr Met Lys Lys Phe Glu Ser 65 70 Pro Asn Ile Leu Arg Ile Phe Gly Ile Cys Ile Asp Glu Thr Val 80 85 Thr Pro Pro Gln Phe Ser Ile Val Met Glu Tyr Cys Glu Leu Gly 95 100 Thr Leu Arg Glu Leu Leu Asp Arg Glu Lys Asp Leu Thr Leu Gly 110 115 120 Lys Arg Met Val Leu Val Leu Gly Ala Ala Arg Gly Leu Tyr Arg 125 130 135 Leu His His Ser Glu Ala Pro Glu Leu His Gly Lys Ile Arg Ser 140 145 150 Ser Asn Phe Leu Val Thr Gln Gly Tyr Gln Val Lys Leu Ala Gly 155 160 165 Phe Glu Leu Arg Lys Thr Gln Thr Ser Met Ser Leu Gly Thr Thr 170 175 180 Arg Glu Lys Thr Asp Arg Val Lys Ser Thr Ala Tyr Leu Ser Pro 185 190 195 Gln Glu Leu Glu Asp Val Phe Tyr Gln Tyr Asp Val Lys Ser Glu 200 205 Ile Tyr Ser Phe Gly Ile Val Leu Trp Glu Ile Ala Thr Gly Asp 215 220 225 Ile Pro Phe Gln Gly Cys Asn Ser Glu Lys Ile Arg Lys Leu Val 230 235 Ala Val Lys Arg Gln Gln Glu Pro Leu Gly Glu Asp Cys Pro Ser 245 250 255 Glu Leu Arg Glu Ile Ile Asp Glu Cys Arg Ala His Asp Pro Ser 260 265 270 Val Arg Pro Ser Val Asp Glu Ile Leu Lys Lys Leu Ser Thr Phe

Ser Lys

275

280

285

<sup>&</sup>lt;210> 3 <211> 346 <212> PRT <213> Homo sapiens

PF-0614 US

<220> -<223> 507669

<400> 3 Met Gly Cys Gly Cys Ser Ser His Pro Glu Asp Asp Trp Met Glu 10 Asn Ile Asp Val Cys Glu Asn Cys His Tyr Pro Ile Val Pro Leu Asp Gly Lys Gly Thr Leu Leu Ile Arg Asn Gly Ser Glu Val Arg 35 40 Asp Pro Leu Val Thr Tyr Glu Gly Ser Asn Pro Pro Ala Ser Pro 50 55 Leu Gln Asp Asn Leu Val Ile Ala Leu His Ser Tyr Glu Pro Ser 65 70 His Asp Gly Asp Leu Gly Phe Glu Lys Gly Glu Gln Leu Arg Ile 80 Leu Glu Gln Ser Gly Glu Trp Trp Lys Ala Gln Ser Leu Thr Thr 95 100 Gly Gln Glu Gly Phe Ile Pro Phe Asn Phe Val Ala Lys Ala Asn 110 115 Ser Leu Glu Pro Glu Ala Asn Leu Met Lys Gln Leu Gln His Gln 125 130 135 Arg Leu Val Arg Leu Tyr Ala Val Val Thr Gln Glu Pro Ile Tyr 140 145 150 Ile Ile Thr Glu Tyr Met Glu Asn Gly Ser Leu Val Asp Phe Leu 155 160 165 Lys Thr Pro Ser Gly Ile Lys Leu Thr Ile Asn Lys Leu Leu Asp 170 175 Met Ala Ala Gln Ile Ala Glu Gly Met Ala Phe Ile Glu Glu Arg 190 195 Asn Tyr Ile His Arg Asp Leu Arg Ala Ala Asn Ile Leu Val Ser 200 205 Asp Thr Leu Ser Cys Lys Ile Ala Asp Phe Gly Leu Ala Arg Leu 215 220 Ile Glu Asp Asn Glu Tyr Thr Ala Arg Glu Gly Ala Lys Phe Pro 230 235 Ile Lys Trp Thr Ala Pro Glu Ala Ile Asn Tyr Gly Thr Phe Thr 245 250 255 Ile Lys Ser Asp Val Trp Ser Phe Gly Ile Leu Leu Thr Glu Ile 260 265 270 Val Thr His Gly Arg Ile Pro Tyr Pro Gly Met Thr Asn Pro Glu 275 280 Val Ile Gln Asn Leu Glu Arg Gly Tyr Arg Met Val Arg Pro Asp 290 295 Asn Cys Pro Glu Glu Leu Tyr Gln Leu Met Arg Leu Cys Trp Lys 305 310 315 Glu Arg Pro Glu Asp Arg Pro Thr Phe Asp Tyr Leu Arg Ser Val 320 325 Leu Glu Asp Phe Phe Thr Ala Thr Glu Gly Gln Tyr Gln Pro Gln 335 340 Pro

```
<210> 4
```

<sup>&</sup>lt;211> 90

<sup>&</sup>lt;212> PRT

<sup>&</sup>lt;213> Homo sapiens

<sup>&</sup>lt;220> -

<sup>&</sup>lt;223> 1439938

<sup>&</sup>lt;400> 4

Met Pro Ala Gly Gly Arg Ala Gly Ser Leu Lys Asp Pro Asp Val 1 5 10 15



<210> 5 <211> 327 <212> PRT <213> Homo sapiens

<220> -<223> 1447427

<400> 5 Met Ser Ser Phe Leu Pro Glu Gly Gly Cys Tyr Glu Leu Leu Thr Val Ile Gly Lys Gly Phe Glu Asp Leu Met Thr Val Asn Leu Ala 25 Arg Tyr Lys Pro Thr Gly Glu Tyr Val Thr Val Arg Arg Ile Asn Leu Glu Ala Cys Ser Asn Glu Met Val Thr Phe Leu Gln Gly Glu 50 55 Leu His Val Ser Lys Leu Phe Asn His Pro Asn Ile Val Pro Tyr 65 70 Arg Ala Thr Phe Ile Ala Asp Asn Glu Leu Trp Val Val Thr Ser 80 85 Phe Met Ala Tyr Gly Ser Ala Lys Asp Leu Ile Cys Thr His Phe 95 100 105 Met Asp Gly Met Asn Glu Leu Ala Ile Ala Tyr Ile Leu Gln Gly 110 115 120 Val Leu Lys Ala Leu Asp Tyr Ile His His Met Gly Tyr Val His 125 130 135 Arg Ser Val Lys Ala Ser His Ile Leu Ile Ser Val Asp Gly Lys 140 145 150 Val Tyr Leu Ser Gly Leu Arg Thr Thr Leu Ser Met Ile Ser His 155 160 Gly Gln Arg Gln Arg Val Val His Asp Phe Pro Lys Tyr Ser Val 170 175 Lys Val Leu Pro Trp Leu Ser Pro Glu Val Leu Gln Gln Asn Leu 185 190 Gln Gly Tyr Asp Ala Lys Ser Asp Ile Tyr Ser Val Gly Ile Thr 200 205 210 Ala Cys Glu Leu Ala Asn Gly His Val Pro Phe Lys Asp Met Pro 215 220 225 Ala Thr Gln Met Leu Leu Glu Lys Leu Asn Gly Thr Val Pro Cys 230 235 240 Leu Leu Asp Thr Ser Thr Ile Pro Ala Glu Glu Leu Thr Met Ser 245 250 Pro Ser Arg Ser Val Ala Asn Ser Gly Leu Ser Asp Ser Leu Thr 265 270 Thr Ser Thr Pro Arg Pro Ser Asn Gly Asp Ser Pro Ser His Pro 275 280 Tyr His Arg Thr Phe Ser Pro His Phe His His Phe Val Glu Gln 290 295 Cys Leu Gln Arg Asn Pro Asp Ala Arg Tyr Pro Cys Trp Pro Gly 305 310 Pro Gly Leu Arg Glu Ser Arg Gly Cys Ser Gly Gly 320

<210> 6

<211> 345 <212> PRT <213> Homo sapiens <220> -<223> 1567782 <400> 6 Met Glu Lys Tyr Val Arg Leu Gln Lys Ile Gly Glu Gly Ser Phe 10 Gly Lys Ala Ile Leu Val Lys Ser Thr Glu Asp Gly Arg Gln Tyr 20 25 Val Ile Lys Glu Ile Asn Ile Ser Arg Met Ser Ser Lys Glu Arg 35 40 Glu Glu Ser Arg Arg Glu Val Ala Val Leu Ala Asn Met Lys His 50 55 Pro Asn Ile Val Gln Tyr Arg Glu Ser Phe Glu Gly Ile Leu Asp 65 70 Trp Phe Val Gln Ile Cys Leu Ala Leu Lys His Val His Asp Arg 80 85 Lys Ile Leu His Arg Asp Ile Lys Ser Gln Asn Ile Phe Leu Thr 100 Lys Asp Gly Thr Val Gln Leu Gly Asp Phe Gly Ile Ala Arg Val 110 115 Leu Asn Ser Thr Val Glu Leu Ala Arg Thr Cys Ile Gly Thr Pro 125 130 Tyr Tyr Leu Ser Pro Glu Ile Cys Glu Asn Lys Pro Tyr Asn Asn 140 145 Lys Ser Asp Ile Trp Ala Leu Gly Cys Val Leu Tyr Glu Leu Cys 155 160 165 Thr Leu Lys His Ala Phe Glu Ala Gly Ser Met Lys Asn Leu Val 170 175 180 Leu Lys Ile Ile Ser Gly Ser Phe Pro Pro Val Ser Leu His Tyr 185 190 Ser Tyr Asp Leu Arg Ser Leu Val Ser Gln Leu Phe Lys Arg Asn 200 205 210 Pro Arg Asp Arg Pro Ser Val Asn Ser Ile Leu Glu Lys Gly Phe 215 220 Ile Ala Lys Arg Ile Glu Lys Phe Leu Ser Pro Gln Leu Ile Ala 230 235 Glu Glu Phe Cys Leu Lys Thr Phe Ser Lys Phe Gly Ser Gln Pro 245 250 Ile Pro Ala Lys Arg Pro Ala Ser Gly Gln Asn Ser Ile Ser Val 260 265 270 Met Pro Ala Gln Lys Ile Thr Lys Pro Ala Ala Lys Tyr Gly Ile 275 280 Pro Leu Ala Tyr Lys Lys Tyr Gly Asp Lys Leu His Glu Lys 290 295 300 Lys Pro Leu Gln Lys His Lys Gln Ala His Gln Thr Pro Glu Lys 305 310 315 Arg Val Asn Thr Gly Glu Glu Arg Arg Lys Ile Ser Glu Glu Ala 320 325 330 Ala Arg Lys Arg Arg Leu Glu Phe Ile Glu Lys Asp Lys Glu Arg 335 340

<210> 7

<211> 424

<212> PRT

<213> Homo sapiens

<220> -<223> 2295842

<400> 7 Met Ile Ser Phe Cys Pro Asp Cys Gly Lys Ser Ile Gln Ala Ala Phe Lys Phe Cys Pro Tyr Cys Gly Asn Ser Leu Pro Val Glu Glu His Val Gly Ser Gln Thr Phe Val Asn Pro His Val Ser Ser Phe Gln Gly Ser Gly Ser Arg Pro Pro Thr Pro Lys Ser Ser Pro Gln Lys Thr Arg Lys Ser Pro Gln Val Thr Arg Gly Ser Pro Gln Lys Thr Ser Cys Ser Pro Gln Lys Thr Arg Gln Ser Pro Gln Thr Leu Lys Arg Ser Arg Val Thr Thr Ser Leu Glu Ala Leu Pro Thr Gly Thr Val Leu Thr Asp Lys Ser Gly Arg Gln Trp Lys Leu Lys Ser -120Phe Gln Thr Arg Asp Asn Gln Gly Ile Leu Tyr Glu Ala Ala Pro Thr Ser Thr Leu Thr Cys Asp Ser Gly Pro Gln Lys Gln Lys Phe Ser Leu Lys Leu Asp Ala Lys Asp Gly Arg Leu Phe Asn Glu Gln Asn Phe Phe Gln Arg Ala Ala Lys Pro Leu Gln Val Asn Lys Trp Lys Lys Leu Tyr Ser Thr Pro Leu Leu Ala Ile Pro Thr Cys Met Gly Phe Gly Val His Gln Asp Lys Tyr Arg Phe Leu Val Leu Pro Ser Leu Gly Arg Ser Leu Gln Ser Ala Leu Asp Val Ser Pro Lys His Val Leu Ser Glu Arg Ser Val Leu Gln Val Ala Cys Arg Leu Leu Asp Ala Leu Glu Phe Leu His Glu Asn Glu Tyr Val His Gly Asn Val Thr Ala Glu Asn Ile Phe Val Asp Pro Glu Asp Gln Ser Gln Val Thr Leu Ala Gly Tyr Gly Phe Ala Phe Arg Tyr Cys Pro Ser Gly Lys His Val Ala Tyr Val Glu Gly Ser Arg Ser Pro His Glu Gly Asp Leu Glu Phe Ile Ser Met Asp Leu His Lys Gly Cys Gly Pro Ser Arg Arg Ser Asp Leu Gln Ser Leu Gly Tyr Cys Met Leu Lys Trp Leu Tyr Gly Phe Leu Pro Trp Thr Asn Cys Leu Pro Asn Thr Glu Asp Ile Met Lys Gln Lys Gln Lys Phe Val Asp Lys Pro Gly Pro Phe Val Gly Pro Cys Gly His Trp Ile Arg Pro Ser Glu Thr Leu Gln Lys Tyr Leu Lys Val Val Met Ala Leu Thr Tyr Glu Glu Lys Pro Pro Tyr Ala Met Leu Arg Asn Asn Leu Glu Ala Leu Leu Gln Asp Leu Arg Val Ser Pro Tyr Asp Pro Ile Gly Leu Pro Met Val Pro

<210> 8 <211> 99

```
PF-0614 US
```

<212> PRT <213> Homo sapiens

<220> -<223> 2605059

<400> 8 Met Pro Leu Glu Glu Val Leu Pro Asp Val Ser Pro Gln Ala Leu Asp Leu Leu Gly Gln Phe Leu Leu Tyr Pro Pro His Gln Arg Ile Ala Ala Ser Lys Ala Leu Leu His Gln Tyr Phe Phe Thr Ala Pro 35 40 45 Leu Pro Ala His Pro Ser Glu Leu Pro Ile Pro Gln Arg Leu Gly 50 55 Gly Pro Ala Pro Lys Ala His Pro Gly Pro Pro His Ile His Asp 65 70 Phe His Val Asp Arg Pro Leu Glu Glu Ser Leu Leu Asn Ser Glu 80 Leu Ile Arg Pro Phe Ile Leu Glu Gly 95

<210> 9 <211> 138 <212> PRT <213> Homo sapiens

<220> -<223> 3000825

<400> 9 Met Trp Val Val Pro Pro Ile Gly Ala Glu Phe Leu Gly Thr Glu 10 Lys Gly Gly Leu Arg Asp Gln Lys Thr Pro Asp Asp His Glu Ala Glu Thr Gly Ile Lys Ser Lys Glu Ala Arg Lys Tyr Ile Phe Asn 45 Cys Leu Asp Ala Cys Val Gln Val Asn Met Thr Thr Asp Leu Glu 50 Gly Ser Asp Met Leu Val Glu Lys Ala Asp Arg Arg Glu Phe Ile 65 70 Asp Leu Leu Lys Lys Met Leu Thr Ile Asp Ala Asp Lys Arg Ile 80 85 Thr Pro Ile Glu Thr Leu Asn His Pro Phe Val Thr Met Thr His 95 100 105 Leu Leu Asp Phe Pro His Ser Thr His Val Lys Ser Cys Phe Gln 110 115 120 Asn Met Glu Ile Cys Lys Arg Arg Val Asn Met Tyr Asp Thr Val 125 135 Asn Gln Ser

<210> 10 <211> 1427 <212> DNA <213> Homo sapiens

PF-0614 US <220> -<223> 119819 <400> 10 cggagccaca gtggctccac ccccacctt cacgcactcc cacggtggta atcccgaaag gctgggtggc tgggctgacg gtaattcccg gggggggtca agtgccccaa actgctcttg 120 gtgaaaggat gctgtcttcc ccgaatggcc acttccgcct gccttagctt gggctgagag 180 gggacagaga gcaccctgag gcgggccggc caggtcttcc cactcctaat ggagctgtgg 240 ggagtggggc cacaggcggg gaggcaggga gagtagtgag tagctggtgc caaggggcgc tggcgccaca ttctggtgtc catgggagcc ctggggcccg gagaggcctc ttccctggcg 360 gctgtgcagg gaaacctcca cttcatgctg actggggcgg gcgacaggaa ccctggggtg 420 accctggctc tgacagcaga ccggtaagct gtccaaaaac aagaggaaga agatgaggcg 480 caaacggaaa cagcagaagc ggctgctgga ggagcggctg cgggacctgc agaggctgga 540 ggccatggag gctgccaccc aggctgagga ctctggcttg agactagacg ggggcagcgg 600 ctccacatcc tettcagget gtcaccegg gggegecaga geaggteect ceccageete 660 tteeteecee geeceagggg geggeegtag ceteagegeg ggeteacaga ceteaggett 720 ctccggctcc ctcttctct ctgcctcctg ctccatcctc tccggctcgt ccaatcagcg 780 agagaccggg ggcctcctgt cgcctagcac accattcggt gcctcgaacc tcctggtgaa 840 ecceetggag ecceaaaatg cagataagat caagatcaag ategcagace tgggcaacge 900 ctgctgggtg cacaagcact tcacggaaga catccagact cggcagtacc gggccgtcga 960 ggtgctgatc ggcgccgaat acggccccc ggcagacatc tggagcacag cctgcatggc 1020 cttcgagctg gccactggtg actacctgtt cgagccgcat tctggagaag actacagtcg 1080 tgatgaggac cacatcgctc acatagtgga gcttctgggg gacatccccc cagccttcgc 1140 ceteteagge egetattece gggagttett caaceggaga ggagagetge ggeacateca 1200 caatctcaag cactggggcc tgtacgaggt actcatggaa aagtacgagt ggcccctaga 1260 gcaggccaca cagttcagcg cetttetget geceatgaat gagtacatee eegaaaageg 1320 ggccagtgcc cgtgactgcc tccagcaccc ctggctccaa ccctagggcc cggctgtggc 1380 tocacctoca gototocgtg cotttaaggg aaaagcggga cagotoc 1427 <210> 11 <211> 1586 <212> DNA <213> Homo sapiens <220> -<223> 132750 <400> 11 geteattgae tettttgtet tettteetet egggggtgag gteagattta eeaccaaaat gcatgcagga gatcccgcaa gagcaaatca aggagatcaa gaaggagcag ctttcaggat 120 eccegtggat tetgetaagg gaaaatgaag teageacaet ttataaagga gaataceaea 180 gagctccagt ggccataaaa gtattcaaaa aactccaggc tggcagcatt gcaatagtga 240 ggcagacttt caataaggag atcaaaacca tgaagaaatt cgaatctccc aacatcctgc 300 gtatatttgg gatttgcatt gatgaaacag tgactccgcc tcaattctcc attgtcatgg 360 agtactgtga actcgggacc ctgagggagc tgttggatag ggaaaaagac ctcacacttg 420 gcaagegeat ggteetagte etgggggeag eeegaggeet ataceggeta caccatteag 480 aagcacetga actecaegga aaaateagaa geteaaaett eetggtaaet caaggetaee 540 aagtgaaget tgeaggattt gagttgagga aaacacagae tteeatgagt ttgggaacta 600

cgagagaaaa gacagacaga gtcaaatcta cagcatatct ctcacctcag gaactggaag 660 atgtatttta tcaatatgat gtaaagtctg aaatatacag ctttggaatc gtcctctggg 720 aaatcgccac tggagatatc ccgtttcaag gctgtaattc tgagaagatc cgcaagctgg 780 tggctgtgaa gcggcagcag gagccactgg gtgaagactg cccttcagag ctgcgggaga 840 teattgatga gtgccgggcc catgatecet etgtgcggce etetgtggat gaaatettaa 900 agaaactete cacettttet aagtagtgta teaaaateta aaceaaggag tetetggaca 960 agaagetggg agaggeaeaa aetggaeate tetetetete atateetteg geattgggtt 1020 atctatggga gcaaggagtg ggcacgcttc tctgttacaa atagaaaacg attccagtca 1080 tacaggacac atoccactoc aaatgatatt tocaaaaaca tacototgac agtaactttg 1140 atagatggtt tgtcaaatgt atctttctgg gtatccacac ctcttggcaa tgaaatttgc 1200 agctcctccc ttccataaat gaagtctctt tccccaccat ttgaatctgg gctggcactg 1260 tgacttgatt tgatcaatag aatgtggaag aagtgactgt atgccagttc caagcctagg 1320 tttcaagagg ccttataaat gtctgttgga accttaccca gccatgaaca tgttgagtga 1380 gcatgctgga gaatgagaga ccacatgaag cagaaacatg ctttcctagc tgaagtcata 1440 ctageceaae caacatggea getaacacat gaatgaggee aateaagaee agaagaacea 1500 ctcaagcaga teccageeca aattgeecat teacacaate aggagetaaa taaattaetg 1560 ttgtcttaac actaaaaaaa aaaaaa 1586

. 4

```
PF-0614 US
<210> 12
<211> 1574
<212> DNA
<213> Homo sapiens
<220> -
<223> 507669
<400> 12
cgacggcgaa gggagctgag actgtccaqg cagccaggtt aggccaggag gaccatgtga
atggggccag aaggctcccg ggctgggcag ggaccatggg ctgtggctgc agctcacacc 120
cggaagatga ctggatggaa aacatcgatg tgtgtgagaa ctgccattat cccatagtcc 180
cactggatgg caagggcacg ctgctcatcc gaaatggctc tgaggtgcgg gacccactgg 240 ttacctacga aggctccaat ccgccggctt ccccactgca agacaacctg gttatcgctc 300
tgcacagcta tgagccctct cacgacggag atctgggctt tgagaagggg gaacagctcc 360
gcatcctgga gcagagcggc gagtggtgga aggcgcagtc cctgaccacg ggccaggaag 420
getteatece etteaatttt gtggeeaaag egaacageet ggageeegag geeaacetea 480
tgaagcagct gcaacaccag cggctggttc ggctctacgc tgtggtcacc caggagccca 540
totacatoat cactgaatac atggagaatg ggagtotagt ggattttctc aagacccctt 600
caggcatcaa gttgaccatc aacaaactcc tggacatggc agcccaaatt gcagaaggca 660
tggcattcat tgaagagcgg aattatattc atcgtgacct tcgggctgcc aacattctgg 720
tgtctgacac cctgagctgc aagattgcag actttggcct agcacgcctc attgaggaca 780
acgagtacac agccagggag ggggccaagt ttcccattaa gtggacagcg ccagaagcca 840
ttaactacqq qacattcacc atcaaqtcaq atqtqtqqtc ttttqqqatc ctqctqacqq 900
aaattgtcac ccacggccgc atcccttacc cagggatgac caacccggag gtgattcaga 960
acctggageg aggetacege atggtgegee etgacaactg tecagaggag etgtaceaac 1020
tcatgaggct gtgctggaag gagcgcccag aggaccggcc cacctttgac tacctgcgca 1080 gtgtgctgga ggacttcttc acggccacag agggccagta ccagcctcag ccttgagagg 1140
ccttgagagg ccctggggtt ctccccttt ctctccagcc tgacttgggg agatggagtt 1200
cttgtgccat agtcacatgg cctatgcaca tatggactct gcacatgaat cccaccaca 1260
tgtgacacat atgcaccttg tgtctgtaca cgtgtcctgt agttgcgtgg actctgcaca 1320
tgtcttgtac atgtgtagcc tgtgcatgta tgtcttggac actgtacaag gtaccccttt 1380
ctggctctcc catttcctga gaccacagag agaggggaga agcctgggat tgacagaagc 1440
ttctgcccac ctacttttct ttcctcagat catccagaag ttcctcaagg gccaggactt 1500
tatetaatae etetgtgtge teeteettgg tgeetggeet ggeacaeate aggagtteaa 1560
taaatgtctg ttga
<210> 13
<211> 1866
<212> DNA
<213> Homo sapiens
<220> -
<223> 1439938
<400> 13
cgggaggaag agggagaggg agaccgggac gagaccgggg ctgtggtgcg gagagaggct
gagacggaga agaggagagg cagagagggc gcggggaccg tcagcagcac cttagctaca 120
atcgttcagc tattctcgga agagagaagg gagagggagg aggccggggc gggagtgggg 180
gctgtcaccc tcggaccccg gcgtgagagg ggccgtgcgg ccggacgtcc tcggggtggg 240
ccccagtcg gtggccgaag acctacagct caggcccctg ggtcccaaat ttccaggctt 300
tgcccctcct cctttctcag atacccgggt aacagtcctc atagtccaga tatccgggac 360
tegggteeca acetetetaa acetgggtet etgttteata gaattteaaa tateaggtte 420
aggcccctgc gtgcaccagt atccggggtt cattccccgg gcgttcagat atcggattca 480
gtctccatcc cgttcagata ttcggggttc agaccccaca atcagaaatc cggaattcgg 540
cagetgtege cetegaegag ggggaggaet ggaeegegag gteagattag gttgteaece 600 cetecetee aggggagget teeegggee geeeteagg aagggegaaa geegaggaag 660
aggtggcaag gggaaaggtc teettgeeec tetecetget tggcagagec getggaggae 720
cccaggegga ageggaggeg etggggeace atagtgacee etaccaggee aggeeceact 780
ctcagggccc ccaggggcca ccatgccagc tgggggccgg qccgggagcc tgaaggaccc 840
agatgtggct gagctcttct tcaaggatga cccagaaaag ctcttctctg acctccggga 900
aattggccat ggcagctttg gagccgtata ctttgcccgg gatgtccgga atagtgaggt 960
ggtggccatc aagaagatgt cctacagtgg gaagcagtcc aatgagaaat ggcaagacat 1020
catcaaggag gtgcggagac gaaggagagt agggagggag gatgaagaga gataaggggg 1080
```

agaaaagaga ggggcatgag agtggagcgg agctaagaag gggtagaaga gagagtgggt 1140 gaaggggaag agacgtagag aaagtgtgga gagaggaaag gcatagcgag agaacgaggg 1200

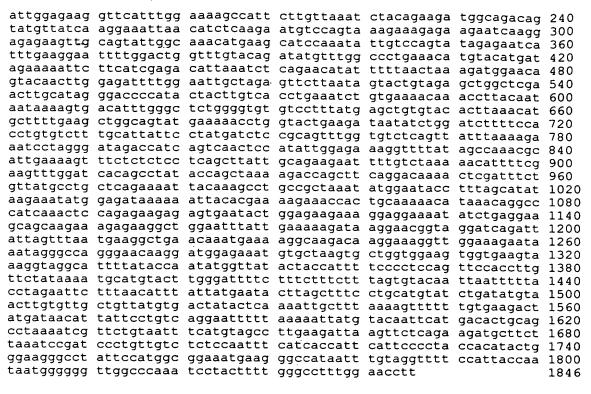




```
agagagaagt ggaaggggga agtaagagag gataagagga acgagaggag gggaagggtg 1260
gggacgagaa cgaagagcat gatggagagg aaagatagag aagagaggaa gtggaggcag 1320
ttagggggca tggaggagag agagagatga gggagagtgg gagcacgggg cggatggacg 1380
gggtggagaa gaagagaggg aggagatgag aggaggaaga ggtgggagaa ccgagcgagg 1440
gaaaagatgg aggaggcagt agagagggtg tgcaaggggt gaaaagaaag aagaaggaaa 1500
aggatggagg gagtgaaggt aggagacgag gaggagggat gggagagaat ggagggtagc 1560
gtgtggatgg tgagtggtag agaatagtga gatggtgaga agcggagaaa ggcagcagag 1620
gatgggggtg aagcgggaag caaagacaat aggggatgga ggaggagagg agcaggagga 1680
agacgaagag cgaagggctt gaaagaggga gaagagagta gtaaggggta ggtatgtaga 1740
aaggaacggg gcagagggag aggaaggaca gaaggagaag agaacaatcg aagaatgaga 1860
atattt
<210> 14
<211> 1498
<212> DNA
<213> Homo sapiens
<220>
<221> unsure
<222> 1350, 1355, 1372, 1444
<223> a or g or c or t, unknown, or other
<220> -
<223> 1447427
<400> 14
ctcccctccc agcaaccggt ctggcggcgg cgcggcagta aaactgagga ggcggagcaa 60
gacggtcggg gctgcttgct aactccagga acaggtttaa gtttttgaaa ctgaagtagg 120
tctacacagt aggaactcat gtcatttctt gtaagtaaac ccagagcgaa tccaggacca 180
atgatgcgag ctcagagtca atagcatcct tctctaaaca ggaggtcatg agtagctttc 240
tgccagaggg agggtgttac gagctgctca ctgtgatagg caaaggattt gaggacctga 300
tgactgtgaa tctagcaagg tacaaaccaa caggagagta cgtgactgta cggaggatta 360
acctagaage ttgttccaat gagatggtaa cattettgca gggcgagetg catgteteca 420
aactetteaa eeateeeaat ategtgeeat ategageeae ttttattgea gacaatgage 480
tgtgggttgt cacatcattc atggcatacg gttctgcaaa agatctcatc tgtacact 540
tcatggatgg catgaatgag ctggcgattg cttacatcct gcagggggtg ctgaaggccc 600
tegactacat ecaecacatg ggatatgtac acaggagtgt caaagccage cacateetga 660
tetetqtgga tgggaaggte tacetgtetg gtttgcgcac aacgeteage atgataagee 720
atgggcagcg gcagcgagtg gtccacgatt ttcccaagta cagtgtcaag gttctgccgt 780
ggctcagccc cgaggtcctc cagcagaatc tccagggtta tgatgccaag tctgacatct 840
acagtgtggg aatcacagee tgtgaactgg ccaacggeca tgteeeettt aaggatatge 900
ctgccaccca gatgctgcta gagaaactga acggcacagt gccctgcctg ttggatacca 960
geaccatece egetgaggag etgaceatga gecettegeg eteagtggee aactetggee 1020
tgagtgacag cetgaceace ageaceece ggeeeteeaa eggtgaeteg eeeteeeace 1080
cctaccaccg aaccttctcc ccccacttcc accactttgt ggagcagtgc cttcagcgca 1140
accoggatge caggtatece tgctggcctg ggcctgggct tcgggagage agagggtgct 1200
caggagggta aggccagggt gtgaagggac ttacctccca aaggttctgc aggggaatct 1260
ggagctacac acaggaggga tcagctcctg ggtgtgtcag aggccagcct ggggagctct 1320
ggccactgct teccatgage tgagggagan ggagnaggga eeegaggetg angeataagt 1380
ggcaggattt teggaagetg gggacaegge agtgatgetg eggtetetee etecettace 1440
teangeteag tgeageacee tetgaacaet ettteteage agtategtag eettegtt
<210> 15
<211> 1846
<212> DNA
<213> Homo sapiens
<220> -
<223> 1567782
<400> 15
```

taggaattcg tcgacccacg cgatccgccg tcagaagact gccacaccta gactgatgct 60 tattagtcat caccgttatt cctactaacg tcctgtgtca ctgagttttt taaatgtcta 120 gcatatctgt aaagatgcct tagaaaaaga atcatggaga agtatgttag actacagaag 180





```
<210> 16
<211> 1721
<212> DNA
```

<213> Homo sapiens

<220> -<223> 2295842

```
<400> 16
agttggacga ggctcagtga aagttttcgc tgggcaactg agaaggtcgc tgtcaagatg
gagtttccaa cccagtaaat ccaagggcca gaccgtgacc tcataaagca tgatctcctt 120
ctgtccagac tgtggcaaaa gtatccaagc ggcattcaaa ttctgcccct actgtggaaa 180
ttctttgcct gtagaggagc atgtagggtc ccagaccttt gtcaatccac atgtgtcatc 240
cttccaaggc tccgggagca gacccccaac ccccaaaagc agccctcaga agaccaggaa 300
gagccctcag gtgaccaggg gtagccctca gaagaccagc tgtagccctc agaagaccag 360
gcagageest cagacgetga ageggageeg agtgaceace teacttgaag etttgeecac 420
agggacagtg ctgacagaca agagtgggcg acagtggaag ctgaagtcct tccagaccag 480
ggacaaccag ggcattetet atgaagetge acceaectee acceteaeet gtgaeteagg 540
accacagaag caaaagttct cactcaaact ggatgccaag gatgggcgct tgttcaatga 600
gcagaactte ttecageggg eegecaagee tetgeaagte aacaagtgga agaagetgta 660
ctcgacccca ctgctggcca tccctacctg catgggtttc ggtgttcacc aggacaaata 720
caggitettg gigttaecca geetggggag gageetteag teggeeetgg aigteageee 780 aaageatgig eigteagaga ggietgiget geaggiggee igeeggeige iggatgeet 840
ggagtteete catgagaatg agtatgttea tggaaatgtg acagetgaaa atatetttgt 900
ggatccagag gaccagagtc aggtgacttt ggcaggctat ggcttcgcct tccgctattg 960
cccaagtggc aaacacgtgg cctacgtgga aggcagcagg agccctcacg agggggacct 1020
tgagttcatt agcatggacc tgcacaaggg atgcgggccc tcccgccgca gcgacctcca 1080
gageetggge tactgeatge tgaagtgget etaegggttt etgeeatgga caaattgeet 1140
tcccaacact gaggacatca tgaagcaaaa acagaagttt gttgataagc cggggccctt 1200
cgtgggaccc tgcggtcact ggatcaggcc ctcagagacc ctgcagaagt acctgaaggt 1260
ggtgatggcc ctcacgtatg aggagaagcc gccctacgcc atgctgagga acaacctaga 1320
agetttgetg caggatetge gtgtgtetee atatgaceee attggeetee cgatggtgee 1380
ctaggtggaa tccagaactt tccatttgca gtgtgcaaca gaaaaaaaa aatgaagtaa 1440
tgtgactcaa ggcctgctgt ttaatcacag ataagcttct agaacaagcc ctggaatgtg 1500
catteetgee actggtttea ggatacteat cagteetgat tageeteeeg gagggeecea 1560
gtttccctcc cgtgaatgtg aagttcccca tcttggtggc ctgcccttca gccagtgtcc 1620
tagcaaagct ggatggggtt gggccggccc acagggggga cccctcctac ccttgacacc 1680
```

<213> Homo sapiens

tctgtgcttt ggtaataaat tgttttacca gaaaaaaaa a

<220> -

<223> 2605059

<400> 17

ttcgcatctt gggcacccca aaccctcaag tctggccggt ttgtaggggc ccttggtgag 60 gtgggtgtgg ggcaggttta ctccactccc aacagcaagt aaccactccc tcccctgaac 120 cttctctctc ctggccccaa cccccttga tggacaggga ccactgtcct ggcccaactc 180 agggetteet cetteetget gteatttggg ttggggtaga teetgteett tgteeetttt 240 caccctagta cacacatgtg cagtgtctca gcaagctgtg cacagagtcg tcatctgaga 300 gggcaagggg atggatgaag gaatacaggg gtgggtgagt gaatgaatga tgggtcaggg 360 agacacatgg atgggagage accececatg tgagtgtgtg ttaggggetg agagttgaca 420 gcagagagca tggcaagggt cgggaactac tctcattgta ccctgttcct tctccctggc 480 ccaggagete actgagetge eggactacaa caagatetee tttaaggage aggtgeeeat 540 gcccctggag gaggtgctgc ctgacgtctc tccccaggca ttggatctgc tgggtcaatt 600 cettetetae ectecteace agegeatege agettecaag getetectee atcagtaett 660 cttcacaget eccetgeetg eccatecate tgagetgeeg attectcage gtetaggggg 720 acctgccccc aaggcccatc cagggccccc ccacatccat gacttccacg tggaccggcc 780 tettgaggag tegetgttga acteagaget gatteggeee tteateetgg aggggtgaga 840 agttggccct ggtcccgtct gcctgctcct caggaccact cagtccacct gttcctctgc 900 cacctgcctg gcttcaccct ccaaggcctc cccatggcca cagtgggccc acaccacac 960 ctgcccctta gcccttgcga gggttggtct cgaggcagag gtcatgttcc cagccaagag 1020 tatgagaaca tccagtcgag cagaggagat tcatggcctg tgctcggtga gccttacctt 1080 ctgtgtgcta ctgacgtacc catcaggaca gtgagctctg ctgccagtca aggcctgcat 1140 atgcagaatg acgatgcctg ccttggtgct gcttccccga gtgctgcctc ctggtcaagg 1200 agaagtgcag agagtaaggt gtccttatgt tggaaactca agtggaagga agatttggtt 1260 tggttttatt ctcagagcca ttaaacacta gttcagtatg tgagatatag attctaaaaa 1320 ceteaggtgg etetgeetta tgtetgttee teetteatti eteteaaggg aaatggetaa 1380 ggtggcattg teteatgget etegtitttg gggteatggg gagggtagea ceaggeatag 1440 ceaettttge eetgagggae teetgtgtge tteacateae tgageaetea tttagaagtg 1500 agggagacag aagtctaggc ccagggatgg ctccagttgg ggatccagca ggagaccctc 1560 tgcacatgag gctggtttac caacatctac tccctcagga tgagcgtgag ccagaagcag 1620 ctgtgtattt aaggaaacaa gcgttcctgg aattaattta taaatttaat aaatcccaat 1680 ataatcccag ctagtgcttt ttccttatta taatttgata aggtgattat aaaagataca 1740 tggaaggaag tggaaccaga tgcagaagag gaaatgatgg aaggacttat ggtatcagat 1800 accaatattt aaaagtttgt ataataataa agagtatgat tgtggttcaa ggataaaaac 1860 agactagaga aacttattct tagccatcct ttatttttat tttatttatt ttttgatgga 1920 gtettgetet gttgeeeact geaatteaag eettggtgae agaetetggt eteaaaaaa 1980 aaaaa 1985

```
<210> 18
```

<211> 661

<212> DNA

<213> Homo sapiens

<220> -

<223> 3000825

<400> 18

tgaggagtga tgaaagctgc atttcaactt aactgatgaa agcaggagca gtttacatcc 60 tgtcattcag atatatttgc aggtcccagc agcagccctc tccccttcct ggggcacagc 120 ccctctctgc ctttcctgca gagagaaaag ccacatcctg tgggcaatga caacatgtgg 180 gtggtgcctc ccataggggc agagttcctg ggaactgaga aagggggctt gagagatcag 240 aagacaccag atgaccatga agcagagaca gggattaagt caaaagaagc aagaaagtac 300 attttcaact gtttagatgc ttgcgtccag gtgaacatga cgacagattt ggaagggagc 360 gacatgttgg tagaaaaggc tgaccggcgg gagttcattg acctgttgaa gaagatgctg 420 accattgatg ctgacaagag aatcactcca atcgaaaccc tgaaccatcc ctttgtcacc 480 atgacacact tactcgattt tccccacagc acacacgtca aatcatgttt ccagaacatg 540 gagatetgea agegtegggt gaatatgtat gaeaeggtga accagageta aacctageee 600



caaacccctc tgccgaatat cctcgctcga gggccaaatt ccctatagtg gtcgtattac 660 g